

When there is no eDIN Network Processor Unit (NPU) connected on the M-Bus, eDIN modules can operate in one of 5 stand-alone modes:

Operating Mode	Description (see further detail on page 4)
Scene	Basic scene-setting, with 8 programmable scenes operated by inputs/buttons 1-8. Master on/off and raise/lower.
Impulse	Inputs toggle their corresponding numbered output "on"/off. The "on" level is remembered. Held-states on inputs alternately raise and lower channels.
Dim	Uses the "analogue" level on each input channel to control the level on the corresponding numbered output channel.
Input	Module channels are a type of input (see table below)
Converter	Converts from one protocol into another (see table below)

The following table shows the modes in which the modules can operate.

Module	Operating Mode				
	Scene	Impulse	Dim	Input	Converter
DIN-INT-00-08	✓	✓	✓	✓	✓
DIN-UBC-01-05	✓	✓	✓	✓	✓
DIN-RP-05-04	✓	✓	✓		
DIN-02-08	✓	✓	✓		
DIN-03-04	✓	✓	✓		

The operation of these modes is common to all modules, it is just the input/output channel types that vary. The IO types and operating modes are described below:

Channel Input Types

"Analogue" level, 0-100%	Applicable modules
0-10V	INT-00-08 / UBC-01-05
DSI	INT-00-08 / UBC-01-05
Switched	
Contact input (N.O. or N.C.)	INT-00-08 / UBC-01-05
PIR input (N.O. or N.C.)	INT-00-08 / UBC-01-05
Plate button	EVO-SGP / EVO-LCD / EVO-TP
Infra Red ¹	All when received from the sensor on an Evo plate. INT-00-08 / UBC-01-05 when IR receiver module is connected to a configurable terminal

¹Infra Red Input – The infra red input has fixed functionality and will only operate in scene mode, where buttons 1-8 recall scenes 1-8, the On and Off buttons recall the On and Off scenes and the raise and lower buttons dim all channels at once.

Channel Output Types

Low Voltage	Applicable Module	Notes
0-10V	INT-00-08 / UBC-01-05	
DSI	INT-00-08 / UBC-01-05	
DALI	UBC-01-05	
DMX ²	INT-00-08	Uses module channels 7 & 8
Mains		
Dimmed Mains	DIN-02-08 / DIN-03-04	
"Switched" Mains	DIN-02-08 / DIN-03-04	"switching" is electronic and therefore not appropriate to all load types
Volt free		
Relay	DIN-RP-05-04 Relay module	

² The DMX output can only be operated by means of a configuration in an eDIN NPU, there are no stand-alone modes that support it.

The following table shows the combinations of input type and output operating modes that are compatible.

INPUT \ OUTPUT		Module	DIN-INT-00-08 / DIN-UBC-01-05							EVO-SGP		CI-00-04 / CI-00-08	
Module	Mode		Channel Type	NO Contact	NC Contact	NO PIR	NC PIR	0-10V	DSI	IR Receiver	Button	Contact inputs	Infra Red
DIN-02-08 / DIN-03-04	Scene	Dimmed / "Switched" Mains	✓	✓	✓	✓			✓	✓	✓	✓	✓
	Impulse	Dimmed / "Switched" Mains	✓	✓					✓	✓	*		✓
	Dim	Dimmed / "Switched" Mains					✓	✓					
DIN-RP-05-04	Scene	Switched	✓	✓	✓	✓			✓	✓	✓	✓	✓
	Impulse	Switched	✓	✓					✓	✓	*		✓
	Dim	Switched					✓	✓					
DIN-INT-00-08	Scene	0-10V	✓	✓	✓	✓			✓	✓	✓	✓	✓
		DSI	✓	✓	✓	✓			✓	✓	✓	✓	✓
	Impulse	0-10V	✓	✓						✓	*		✓
		DSI	✓	✓						✓	*		✓
	Dim	0-10V					✓	✓					
		DSI					✓	✓					
DIN-UBC-01-05	Scene	0-10V	✓	✓	✓	✓			✓	✓	✓	✓	✓
		DSI	✓	✓	✓	✓			✓	✓	✓	✓	✓
		DALI	✓	✓	✓	✓			✓	✓	✓	✓	✓
	Impulse	0-10V	✓	✓						✓	*		✓
		DSI	✓	✓						✓	*		✓
		DALI	✓	✓						✓	*		✓
	Dim	0-10V					✓	✓					
		DSI					✓	✓					
		DALI					✓	✓					

* In impulse mode, the contact inputs on the rear of a plate act the same way as buttons 9&10 on the plate, i.e. they toggle all channels on/off

Notes

1) In stand-alone mode, a switch input such as a PIR controlling a module in scene mode can only perform one action e.g. an active PIR input on channel 1 triggering Scene 1 on a dimmer module. Without a NPU it is not possible to set a PIR to recall one scene when it is triggered (contacts close) and a different scene when the PIR timeout expires and the contacts subsequently open.

2) Although scenes can be recalled via switches connected to an input module, a plate is still required to program the levels on those scenes, although this could be removed after commissioning.

The various operating modes and their functionality are described in more detail on the following page.

Input Mode

When any input on the system changes state/level, it will send a message on the bus to all other modules who will respond according to their output operating mode as described below. Modules in input mode will ignore messages from all other devices on the bus.

Output Mode : Scene

Any switched input type will recall the corresponding scene on any output module set to scene mode (i.e. plate 1/button 1 recalls scene 1 etc.)
 "Analogue" inputs do not affect modules in Scene mode

Output Mode : Impulse

Any switched input will impulse the corresponding channel on any output module set to impulse mode (i.e. contact 1/button 1 impulse dims output channel 1 etc.)
 "Analogue" inputs do not affect modules in Impulse mode

Output Mode : Dim

Any "analogue" input will set the corresponding channel to the same level on any output module set to dim mode.
 Any output channel on a module set to dim mode will mimic the level of the corresponding numbered output module channel (if that module is in scene or impulse mode).
 Switched inputs do not affect modules in Dim mode.

Converter Modes

Converter modes can be thought of as an input and output module in one box, where the first four channels are inputs and the last four channels are outputs. In an IO module, channel 1 is then linked to channel 5, channel 2 is linked to channel 6 etc.

In a UBC module, the input channels are the configurable IO terminals and the output channels are the first four DALI channels. Therefore Configurable input 1 is linked to DALI channel 1 etc.

The following table shows the modes that each 'half' of the module operates in for each converter mode.

The input/output rules described above still apply, so the first four input channels will also send their change of state on the bus and the output channels will send their dim level on the bus.

This then allows combinations such as an IO module set to convert 4 contact inputs to 4 impulsed analogue outputs controlling 0-10V ballast with an additional relay module set to DIM mode (channels 5-8) to mimic the 0-10V output and switch the mains power to the ballasts.

Converter mode	Menu Option	Input type	Output type	Output mode
IO Module (DIN-INT-00-08)				
DSI Input → Analogue Output	D-AN	DSI	0-10V	Dim
Analogue Input → DSI Output	AN-D	0-10V	DSI	Dim
Contact Input → Analogue Output	C-AN	N.O. Contact	0-10V	Impulse
Contact Input → DSI	C-DS	N.O. Contact	DSI	Impulse
Universal Ballast Control Module (DIN-UBC-01-05)				
Analogue Input → DALI	A-DA	0-10V	DALI	Dim
Contact Input → DALI	C-DA	NO contact	DALI	Impulse

How to decide what modes to set modules to

Modules that are in either Scene or Impulse mode send many messages on the M-Bus to update plate LEDs etc. and to allow other modules to mimic their channels.

This causes two issues which need to be addressed. The first is that if there are multiple modules set to either Scene or Impulse mode, the plate LED colours can get 'confused'.

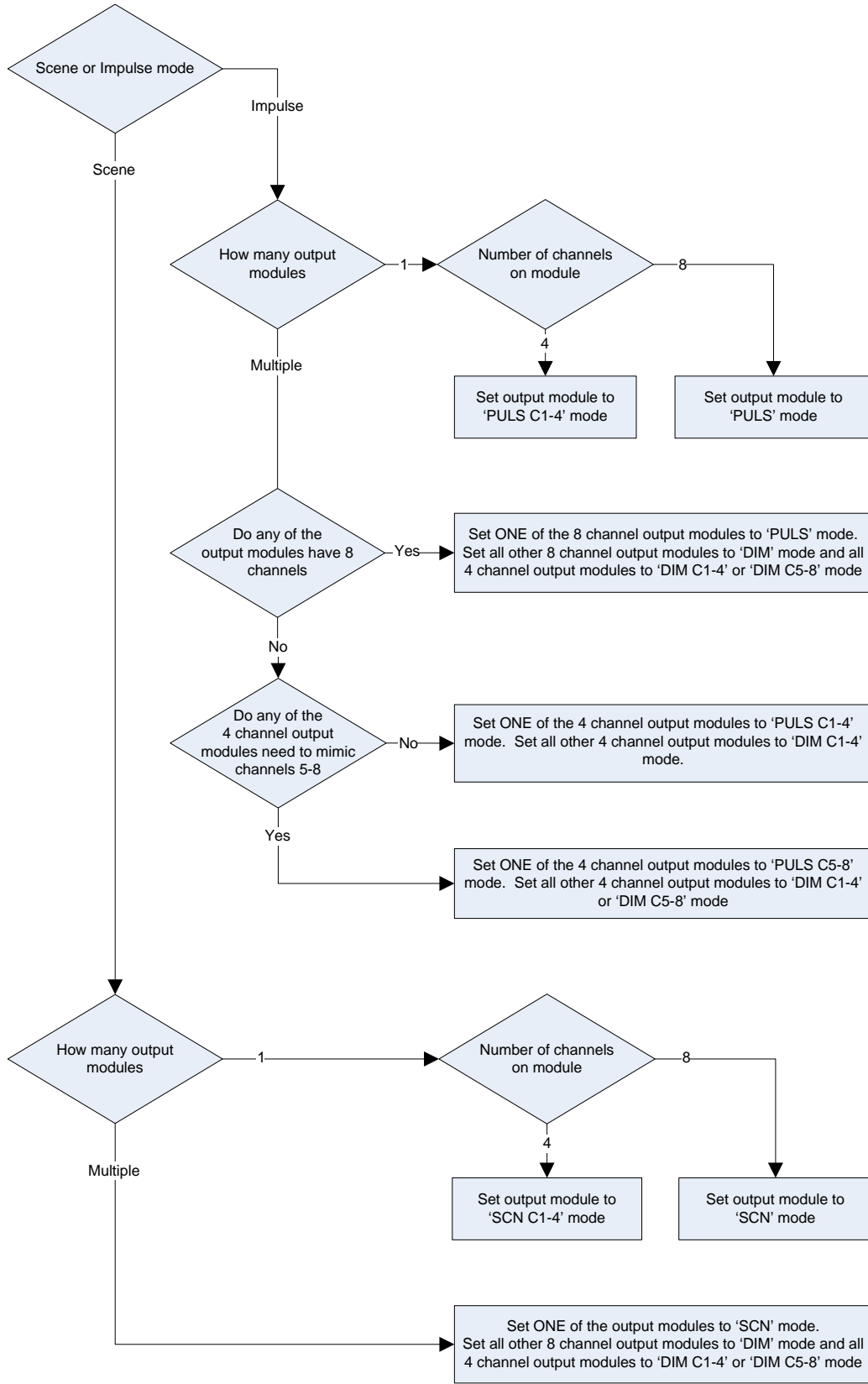
The second is that due to the way the M-Bus works, multiple output modules on the same address will all try and transmit data at the same time causing data corruption and loss of messages.

To overcome both of these issues, it is always preferable to have one module in Scene/Impulse mode (acting as a "master") and any other output modules in Dim mode (as "slave" modules, listening to messages from the "master").

If a plate is being used to control the system, it is also important to carefully select which of the modules is set to Scene/Impulse mode. *(In Impulse mode, only modules that have 8 channels or are configured to control channels 5-8 will drive all 8 plate LEDs.)*

These issues do not apply to modules that are in 'Input' mode *(Note that this is true from software V1.25 onwards, before this there was an issue when multiple inputs were triggered at once)*

The flowchart on the following page shows which modes output modules should be set to.



Things to Remember

In all modes, except Converter mode, any input channel controls only its respective numbered output channel or scene.

e.g. Input Channel 3 only controls Output Channel 3 or Scene 3 (Dependant upon output operating mode)

To communicate with each other, the input and output modules must be on the same M-Bus address.

Additional notes

Other MBus devices such as EVO-INT-CI-04, -CI-08 can be used as inputs.

Any input device set to address 511 will control all output modules irrespective of their address (note that a plate on address 511 will function, but the button colours will not update).

The external switch inputs 1 & 2 on an EVO-SGP or EVO-LCD plate mimics buttons 9 & 10 on the plate.

To speed up installation, when a stand-alone mode is selected, an input/output type is also automatically selected for all channels. If multiple different channel types are required they can be individually changed after the stand-alone mode is selected.

e.g. If you want an IO module to operate in scene mode but want some outputs to be 0-10V and some DSI, select Scene mode (Analogue) and then manually change the required channels to be a DSI output type.

This documentation is based on the features contained in control board software version 1.30. Other versions may differ in their functionality.

Further Information

See the Installation guides for each module, which contain details of menu navigation and options, available online at www.edincontrols.com

Document Revision History

Revision	Notes
1.00, 11-05-10	PJH. First release
1.10, 07-04-11	PJH. "How to decide what modes to set the modules to" section added + various minor edits